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**PUBLIC INTERCEPT INTERVIEWS AND SURVEYS FOR
GATHERING PLACE-BASED PERCEPTIONS: OBSERVATIONS FROM
COMMUNITY WATER RESEARCH IN UTAH***

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ABSTRACT

Public intercept interviews provide a useful data gathering method for assessing locally salient topics. We describe a recent project to highlight public water perspectives in parks in two Utah cities and we focus on the methodological considerations to expand applications of the public intercept survey method. Combining demographic survey information with open-ended interview data allows for validating samples against census information. An expanded informed consent process allows participants to make selections regarding data use and identification. New technologies enable a paperless process and data management opportunities as well as challenges. Participants were largely willing to allow use of interview audio recordings to be used in reporting findings, and just under half were interested in being identified. Undergraduate research assistants played key roles in carrying out this intercept survey project, highlighting potential for future application of this method with students, community groups, or citizen scientists.

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Public intercept surveys or interviews are a straightforward and direct method for gathering data on public perceptions or other locally relevant information. However, compared with Internet, phone, and mail surveys (Dillman, Smyth, and Christian 2014), literature on public intercept survey or interview methods is sparse. While authors of methods textbooks highlight the value of face-to-face interviews for high response rates and usefulness when long, interactive, in-depth interviews are necessary (Neuman 2006; Singleton and Straits 2010), they do not mention shorter and more systematic public intercept interview or survey methods. For research efforts without resources for time-consuming and costly data gathering methods, or without an available sampling frame to identify potential participants, public intercept survey and interview methods can be quite helpful. In addition, when the research topic has a place-based or natural resource focus, certain public places provide salient and convenient opportunities for data gathering (Rookey et al. 2012). Face-to-face survey and interview modes allow for asking more open-ended questions and opportunities for clarification as needed. Further, given a fast-paced society where potential participants generally do not like to be distracted by lengthy, time-consuming survey efforts, there is a need to streamline procedures to reduce time and effort by participants (Dillman et al. 2014). Contemporary technologies, including recording devices, portable tablet computers, and project management software applications, make digitally-enabled intercept surveys quite feasible (Robertson and Boggle 2015), and keep face-to-face interview protocols short and simple.

In this paper, we describe a public intercept interview and survey method designed to collect perceptions on water in Utah, with attention to obtaining demographic information to assess the representativeness of participants. We describe involvement of undergraduates in all aspects of the project to show how this method can be adapted for inexperienced research teams, while still attending to protocol and research quality. Our project goals involved research, methods development, and training components. As for research, we sought to gather public perceptions of water issues in a local, community setting. Research questions focused on values and vulnerabilities associated with water, familiar water bodies and assessments of the status of these waters, and the role of community in water issues. In this paper, we limit research findings on water perceptions to illustrations of data types that can be obtained using this method. As to methods development, we sought a mechanism through which we could validate the sample of participants by comparison with local demographic statistics as well as a quick and paperless informed consent and data gathering process, including a way for participants to

choose whether they would like to be identified and how they would like their data to be shared. We also endeavored to manage data to ultimately share data to the fullest extent possible given human subjects research limitations. Additionally, training was provided to the research team, not only to ensure careful scientific process and collection of quality data, but also to provide a research experience for undergraduates in social science research design, data collection and management, visualization, and analysis.

Literature on Public Intercept Surveys

Public intercept surveys are common in consumer research because of lower costs and usefulness in reaching a local population (Blair, Czaja, and Blair 2014). The “mall intercept” survey used to be a staple of marketing research (Bush and Hair 1985), but was later questioned for sample bias due to changes in shopping populations (Bush and Grant 1995) and avoidance behavior (Keilor and Sutton 1993). Public intercept methods have been used in national parks (Anderson et al. 2010; Ricard, Scherer and Newman 2011; Rookey et al. 2012), public parks (Campbell 2013), river recreation (Blahna and Reiter 2001; Loomis 2007), and fisheries research (Ditton and Hunt 2001). Often, in these natural resource-oriented efforts, public intercept is used as a sample building mechanism for a follow up mail survey (Ditton and Hunt 2001; Rookey et al. 2012). Others have used intercept surveys in particular locations to reach people who might otherwise be hard to find (e.g., migrants) (McKenzie and Mistiaen 2007). Rookey et al. (2012) referred to people in particular locations as *quasi-general public populations*. One limitation of intercept survey methods is the difficulty in tracking response rates if there are no controlled access points or mechanisms to help determine the quasi-general public population and sample size at any point in time and space. We highlight methods below to counter these sampling challenges.

Method Options for Assessing Place-Based Perspectives on Water

Water is an essential component to everyday life and brings both opportunities and vulnerabilities within landscapes (Flint and Krogman 2014). Although considerable research has explored public perspectives on water using survey research methods (Hu and Morton 2011; Larson et al. 2011), a more qualitative approach using interviews is helpful to reduce specification bias in how questions are formulated and allows for exploration of more holistic perspectives on water (Davenport and Anderson 2005; Gunderson and Watson 2007; Larson et al. 2016). Interviews enable researchers to investigate the diversity of meanings and opinions

within a population and enable participants to reflect with more deliberation than completing a standard questionnaire (Dunn 2010). Furthermore, because “people’s perceptions of the environment are expressions of place-based self-identify” (Cheng, Kruger, and Daniels 2003: 96), assessing perspectives within the context of a given location provides a grounded approach to inquiry with local stakeholders (Gunderson and Watson 2007). Although the focus of this paper is largely on methods considerations associated with public intercept interviews and surveys, we highlight a few insights obtained about water perspectives to show the potential to use this method for systematically collecting locally relevant input.

IMPLEMENTING PUBLIC INTERCEPT METHODS

The section below highlights our methods for carrying out this public intercept data collection effort. We highlight the specifics of our project, as well as observations on best practices and limitations. We start with the study context to provide background on our study and the role of student researchers. We continue through site selection and participant sampling, research design, interview procedures (including an informed consent process), and data management and analysis procedures. Throughout this section, we highlight the role of digital technology to create a paperless and convenient process. We comment on limitations and observations on best practices in each research method phase.

Study Background

This research is part of a large interdisciplinary project called iUTAH (Innovative Urban Transitions and Aridregion Hydro-Sustainability) designed to build understanding of urban water sustainability in Utah (Hale et al. 2015) and provide workforce development training related to water science. Before this project, primary social science data collection efforts focused on surveying households across three study watersheds in urban northern Utah and interviewing key informants related to water policy and management. With this public intercept survey project, we sought to open water science inquiry to the perspectives of local people in two study areas to enable exploration of the potentially different ways of framing water issues. We refer, internally, to this project as *Utah Water Voices*.

Besides contributing to research on water sustainability, the Utah Water Voices project was designed to provide training and learning for a team of undergraduates who had no prior social science or field-based research experience. In the description of the methods protocol and observations of best practices, we highlight the roles of student researchers to illustrate the potential for adapting this research

method for inexperienced groups, such as students, community groups, or citizen scientists. The research benefits of involving students in community-based research extend beyond the obvious source of labor for field-based research and data processing. Students bring ideas about innovative technologies to enhance and speed up the research process, and their friendly, youthful presence in the field is attractive to potential participants, thus enabling a robust survey data collection process. In return, students not only gain employment, but also worthwhile research experience and skills, as well as insights into their own communities and locally relevant issues. Incorporating inexperienced researchers adds potential sources of error into the research, but careful selection of research staff, thorough training and quality control measures, team-based processes with regular communication and record keeping, and involvement by the primary investigator all help to reduce potential limitations.

Site Selection, Participant Sampling, and Research Design

To allow for linkages with other iUTAH research efforts, two study areas were chosen in Northern Utah: 1) Logan, a primary study location along the Logan River in a mountain valley with just over 100,000 people; and 2) Salt Lake City, a secondary study area near the Jordan River with a valley-wide population of more than one million people (Figure 1). Within Logan, we selected six public parks along the Logan River system to serve as sampling sites, as they mirror the mountain-to-urban gradient framing of the iUTAH project (Figure 1). The Logan sites were the primary study area for five weeks of data collection. In Salt Lake City, a three-day study was designed for comparative purposes in a more metropolitan setting, and three public parks were chosen as study sites along tributaries and the main stem of the Jordan River. Parks varied on the degree to which water was a local feature and was not always the basis for park recreation.

Public parks were chosen for their easy access to a cross-section of the local population with no restrictions on access anytime of the day or day of the week. Different park settings were selected to reach a variety of people with different park-going purposes to diversify the pool of participants. Although other public spaces (including libraries or government offices) may allow access to people who may not frequent local parks, these other spaces are often only open during weekday workday hours and thus, have their own limitations. Site selection must be made based not only on achieving the most robust sampling opportunities, but also considering the size of the research team and their availability for data collection.

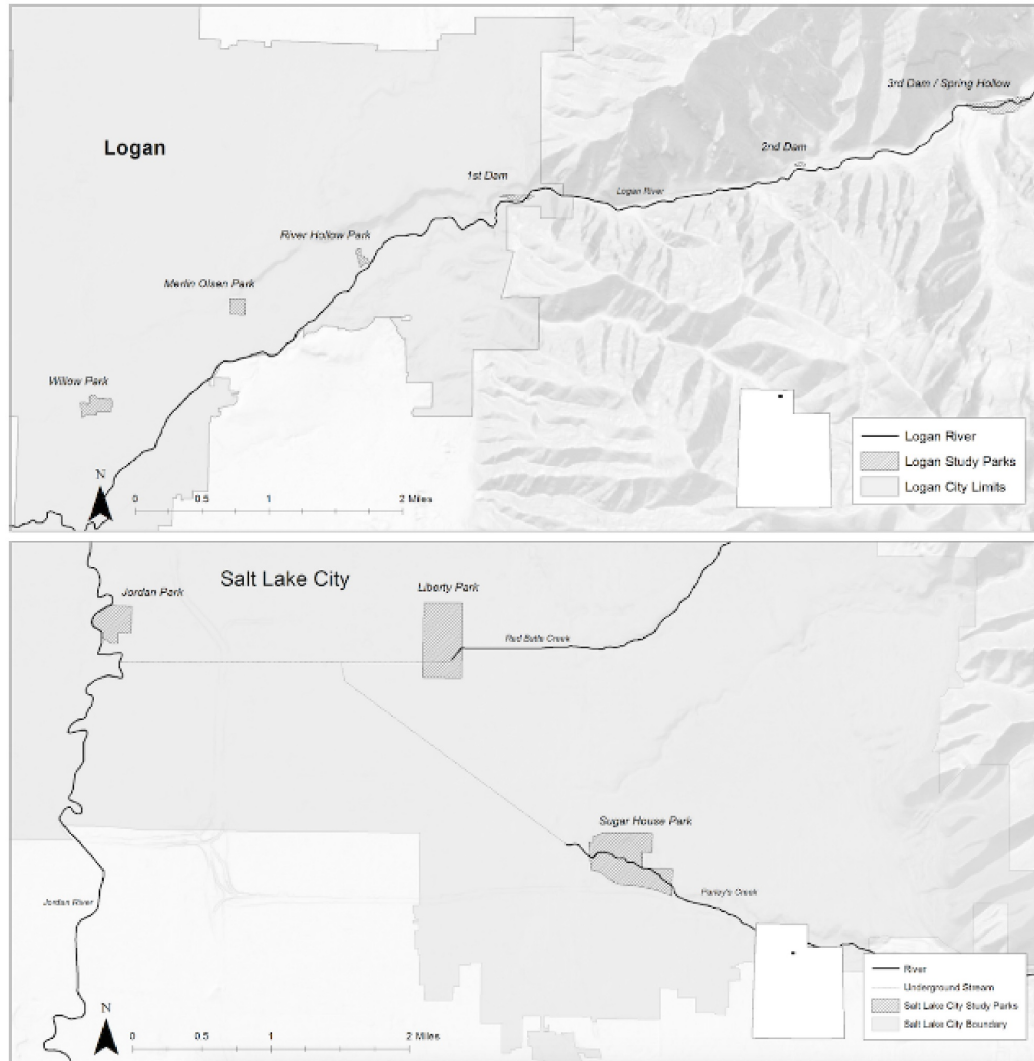


FIGURE 1. MAPS OF LOGAN AND SALT LAKE CITY STUDY

Our study population consisted of people in the two study cities, narrowed to adults found in public parks during various data collection days and times (across seven days of the week and including morning, afternoon, and evening hours). Thus, the sampling design for this study was a combination of convenience sampling (any adult who happened to be at a given park on a given day and time) and random probability sampling (to randomize participant selection, field staff approached the next adult they encountered as a potential participant with no screening for particular characteristics). We did not approach individuals or large groups of people engaged in activities that would clearly be interrupted by a request to participate (e.g., on the phone, participating in a sport, directly interacting with

PUBLIC INTERCEPT METHODS

111

young children). We excluded people who were not residents of Utah as there was no research-based reason to include people who were not local residents of our study communities; however, an interview question provided information on home community for analysis purposes. The design of this study meant that anyone not in one of the study parks during the days and times when our field teams were collecting data, or who was in a park but part of a large group activity or otherwise deemed inappropriate to interrupt, was excluded from the study.

In Logan, data collection occurred two-to-four days a week over a period of five weeks. Efforts were taken to alternate the day of the week and time of day for fieldwork. Furthermore, the order of visiting study sites was changed as the team became more familiar with times of greatest use for the various locations. The field team of two-to-three people worked parks together, but split to interview different people.

The primary mode of data collection for our research was a semi-structured interview using open-ended questions about water perspectives and experiences. To assess the representativeness of participants in comparison to the local study community, an additional demographic survey with closed-ended questions was incorporated into the interview. Additionally, information regarding site, date, time, number of participants, number of people declining to participate, as well as the general weather conditions and park use, was recorded in field notes (see example in Figure 2).

With the guidance and leadership of the principal investigator, students were involved in all stages of the research process, from selection of study sites and designing sampling procedures, to creating the interview questions and protocol, setting up equipment and software, field-based data collection, data management, transcribing, coding, analysis, and research presentations and reporting. To reduce the chance of interviewer bias and other sources of research error, training was provided for students according to their various rolls, including: human subjects research certification; practice interviews; and instructions for transcribing, coding and analysis. Supervision and quality control checks were incorporated periodically throughout the project. The principle investigator occasionally reviewed field notes for opportunities to adjust or correct procedures and address emerging difficulties. Accurate and thorough field notes, as well as timely review, are essential for correcting and adjusting procedures, reducing errors, and improving overall data quality. Beyond documenting field circumstances, procedural notes are crucial for maintaining consistency and training new staff that may come into a project.

June 9th, 1:20-3:55pm

7 Interviews, 0 Declines

Notables: This was the first day that we did a run through of the full circuit from top to bottom with Alex on board. We timed the circuit today. Today we also realized that we can potentially improve sample size/diversity on the long trail from 3rd dam to 1st dam park.

Weather: The weather today is sunny. Few clouds. Hot day. Swimming weather.

Field Log:

1:20 – Heading up Logan Canyon

1:35 – Arrived at Spring Hollow Campground

1:46 – No one readily available for interview. About 6 cars in lot. 3 actively fishing on entrance bridge. Young group of teenagers eating at a table.

1:51 – 2nd Dam. Group of 12 in a family function. Total of 12-15 cars. We took a walk around entire area, crossed the bridge, peered down the trail, and turned back with no approachable people. Unfortunately the only person we were able to interview was not from Utah.

2:07 – 1st Dam. About 6 clusters of people. One person unable to participate due to being an Idaho native.

2:46 – Still at 1st Dam. About 8 clusters of people, mostly young. Alex did his first interview. An older couple who had spent some time in AZ noted they hadn't ever seen public restrictions regarding water usage.

3:08 – After a last interview at 1st dam, we headed to River Hollow to check on the status at this time of day and behold! Our first people at River Hollow! 4 young adults playing volleyball, 2 kids on a park bench, and 2 moms hanging out.

3:40 – All 3 of us got interviews that were quite pleasant.

3:45 – We stopped by Merlin Olsen park today. Due to time restrictions we were unable to commit to staying and performing interviews. Most people looked engaged in group activities.

3:55 – Arrived back at USU. This completes the field log for today.

FIGURE 2. FIELD NOTE EXAMPLE

Interview Procedures

The entire data collection process was designed to be paperless and integrated for efficient project and data management via the use of iPads. An interactive (fillable) PDF form, created by a student in charge of data management, guided the

PUBLIC INTERCEPT METHODS

113

integrated data collection process in the field. This form included five components to mirror the data collection process conducted in the field: 1) a letter of information required by the Utah State University Institutional Review Board (IRB) with the signature of the principle investigator and a place for participant signature or mark to show consent to participate; 2) open-ended interview questions; 3) a closed-ended demographic survey with fillable boxes; 4) data use and identity release options with entry field to capture name where appropriate; and 5) a prompt for field notes regarding interview details or circumstances. Versions of the PDF guide were available in Spanish as well as English, and two of the three members of the field team were conversational Spanish speakers. The use of iPads also allowed for accurate confirmation of interview day and time. Digital audio recorders were used to capture the audio from interviews, as all participants consented to be recorded. The field team used Evernote[®] software (introduced by a student on the team) to coordinate descriptive field notes on smart phones and iPads. The iPad was handed to participants at a few points during the interview procedures (namely for their signature and to fill out demographic survey), but otherwise was handled by the interviewer. The field team did not encounter any reluctance or difficulty by any participant in using the iPad. The only iPad problem was a cracked screen that led to replacement. One interview was not recorded due to a dead recorder battery. As note taking in the field can be cumbersome and inaccurate, ensuring equipment is fully charged before field interviews is important.

After approaching a potential participant, researchers briefly mentioned they were doing a study for Utah State University on perspectives about water and asked if the person would be interested in participating in a short, five-to-ten-minute interview. If an individual agreed, the field researcher initiated the protocol using an iPad and interactive PDF form to guide the interview process as outlined above.

In phase 1, an information sheet on an iPad was shown and described to participants to highlight the purpose of the project, the voluntary nature of the research, and associated participant rights. Participants were asked to sign or mark on the electronic form if they consented to participate. In phase 2, after assuring that the person was 18 years of age or older and at least a part-time resident in Utah, interview questions were asked, beginning with, “What brought you to this location, today?” and, “What is the first thing that comes to mind when you think of water?” A series of seventeen subsequent questions explored values and vulnerabilities associated with water, Utah water bodies they interact with, community water experiences, perspectives on water sustainability actions, and sources of water information. In phase 3, the demographic survey was described and

participants were handed the iPad to answer eight closed-ended questions. In the last phase, four options for research use and release of interview data (written and/or audio) and identification (anonymous or identified) were reviewed with a place for participants to select their option and type their name if they chose to be identified. The digital form was signed and dated by the field staff person to indicate acknowledgment of the participant's wishes regarding the sharing of information. In phase 5, after thanking the participant, notes were added to the PDF form to describe any notable information about the interview, including any difficulties or circumstances that may have impeded full participation. The field staff then set out to identify and approach the next potential participant. Periodically, photos were taken to capture the field setting and issues raised in interviews, including photos of participants when consent was provided. At the end of each site visit, number of participants and declines were recorded in field notes via smart phone or iPad.

Data Management, Analysis, and Processing

The multiple data types accumulated during this project required various data management efforts coordinated by a student data management technician. Data file types included: 1) PDF forms; 2) digital audio recordings; 3) demographic survey data; 4) field notes; 5) transcriptions; 6) photos; and 7) data from analysis. Field staff had a few difficulties with downloading data files from iPads and recording devices due to changing procedures early in the project. Having standard protocol for file naming and organization is essential. In hindsight, our data processing procedures were cumbersome for the field staff.

Data and metadata were prepared for public release on the Hydroshare data repository (www.hydroshare.org), taking into consideration the different categories of data type release and identification preferences of participants. All data were organized using Box.com, a shared, password-protected, internet-based file management system. A student researcher transcribed interviews from audio to text using NVivo® software. Two additional researchers subsequently edited transcripts: one for content verification by field staff; the other for formatting, spelling, and grammar accuracy, as well as Spanish to English translation. The principal investigator also reviewed each transcript. In hindsight, transcribing and editing transcripts promptly while experiences are still fresh in the minds of field staff is important to provide clarifications and corrections.

Demographic survey data were uploaded to a spreadsheet and tabulated for comparison with related indicators for the study communities from the U.S. Census. The representativeness of the participants was periodically assessed throughout

data collection to facilitate adjustments in field strategy. Demographic indicators were also used to assess the characteristics of groups choosing different informed consent options regarding audio data use and identification. Demographic information was only intended for summary use and reporting, and not to be linked to interview content in any reporting.

For the water-related interview content, after establishing a set of emergent water issues through team discussion, interview content was initially coded for the presence or absence of each theme using Excel software. Inter-coder reliability was calculated to be greater than 80 percent and any discrepancies were subsequently resolved for full-consensus coding. Besides quantitative content analysis, deeper qualitative analysis was also conducted. Additionally, all Utah water bodies mentioned in the interviews were tabulated and mapped with corresponding information about any status change participants would like to see. Digital videos were created to present research findings, combining photos, narration, and representative interview quotes in both audio and text. These videos are available online (<http://tinyurl.com/researchfindingsvideos>), offering a strong reconnection with the public as part of the research process.

RESULTS

This section provides summary findings related to public intercept interview participation, sample validation based on demographic information, and limited examples of water-related research findings. The purpose here is to illustrate procedures rather than substantive research results.

Tracking Participation

During the study period of five weeks in the summer of 2015, intercept interviews were conducted on 19 different days with 133 people (100 in Logan and 33 during a three-day pilot effort in Salt Lake City). In Logan, the field team tracked 27 declines yielding a participation rate of 78.7 percent. In Salt Lake City, there were 7 declines yielding a participation rate of 82.5 percent. Unfortunately field notes on time of day for declines were incomplete, but what we obtained suggest declines were evenly spread across times of day. Rates of participation varied across the public parks, largely because the levels of park activity varied according to park, day of the week, and time of day. There was no simple way to track the overall number of people in these parks given their size. Interviews were distributed across various times of day. We conducted 30 percent of our interviews in the evening, about 53 percent during the afternoon, and 16 percent in the

morning. In Table 1, we show the total number of interviews by park (not all parks were visited each day). In Logan, one park (Site D) was rarely found to have adults to interview (mostly children or empty). Interview length, excluding the demographic survey and informed consent procedures, averaged 6 minutes and 56 seconds and ranged from 1 minute and 47 seconds to 20 minutes. Figure 2 shows an example from field notes describing conditions and interviews.

TABLE 1. NUMBER OF INTERVIEWS BY SITE AND DATE

	SITE	SITE	SITE	SITE	SITE	SITE	SITE	SITE	SITE
DATE	A	B	C	D	E	F	G	H	I
June 2	-	-	2	0	2	3	-	-	-
June 4	-	-	3	-	-	-	-	-	-
June 5	-	-	3	-	2	4	-	-	-
June 9	-	-	4	3	-	-	-	-	-
June 10	3	1	2	-	0	1	-	-	-
June 11	-	-	1	-	-	-	-	-	-
June 13	4	2	1	0	0	0	-	-	-
June 16	1	2	6	0	5	0	-	-	-
June 17	0	1	2	0	4	2	-	-	-
June 18	0	2	5	-	-	-	-	-	-
June 19	-	-	0	0	1	2	-	-	-
June 23	2	0	4	-	-	-	-	-	-
June 24	-	-	-	-	-	-	-	4	0
June 25	-	-	-	-	-	-	4	15	7
June 26	-	-	-	-	-	-	-	3	-
July 1	0	1	6	0	0	2	-	-	-
July 2	-	1	-	-	-	-	-	-	-
July 9	3	-	-	-	-	-	-	-	-
July 11	2	2	-	0	3	-	-	-	-
Total	15	12	39	3	17	14	4	22	7

NOTE: Site Information – A = Logan 3rd Dam Park; B = Logan 2nd Dam Park; C = Logan 1st Dam Park; D = Logan River Hollow Park; E = Logan Merlin Olsen Park; F = Logan Willow Park; G = SLC Sugar House Park; H = SLC Liberty Park; I = SLC Jordan Park

Demographic Information

Demographic surveys were conducted along with the interviews to attempt to validate the samples in comparison to U.S. Census data and to assess whether there were any differences between groups related to identity release and sharing audio data. In Table 2, we show the demographic summary data for participants and comparative figures from recent census data for the cities of Logan and Salt Lake

TABLE 2. DEMOGRAPHIC SUMMARY FOR PARTICIPANTS BY CITY AND CENSUS COMPARISONS

	PCT. OF SALT LAKE CITY PARTICIPANTS ¹	SALT LAKE CITY FROM ACS 2010–14 ²	PCT. OF LOGAN CITY PARTICIPANTS ¹	LOGAN CITY FROM ACS 2010–14 ²
Owned residence.	46.7	48.5	35.9	42.3
Female	54.5	51.5	55.0	50.7
Age 18–29	45.5	31.8	61.6	55.8
Age 30–39	18.2	21.6	16.2	15.6
Age 40–49	12.1	14.7	8.1	8.6
Age 50–59	12.1	13.1	3.0	7.6
Age 60+	12.1	18.8	11.1	12.3
Some high school or high school diploma/GED.	9.0	30.7	28.9	29.0
Some college and/or vocational/technical degree	36.4	27.2	39.2	34.1
Four-year college degree.	36.4	24.2	22.7	24.8
Graduate degree	18.8	17.9	9.3	12.1
Household income under \$25,000	20.7	28.4	47.7	33.4
Household income \$25,000–\$49,999 . .	37.9	25.0	25.6	32.0
Household income \$50,000–\$74,999 . .	10.3	17.0	14.0	18.1
Household income \$75,000–\$99,999 . .	20.7	11.1	8.1	7.3
Household income \$100,000+.	10.3	18.4	4.7	9.7
Pct. Non-White.	29.4	34.3	13.4	23.2

NOTES: ¹Based on those who chose to answer, ²From the American Community Survey 2010–2014 (5 year Estimates)

City. For Logan, the sample was quite representative (within 5 percent of the census figures) for gender, age, and education except for oversampling younger adults. The Logan sample is over-representative of renters, those with household incomes less than \$25,000, and white respondents. The Logan sample was under-representative of those with household incomes between \$25,000 and \$49,999. For Salt Lake City, the sample was quite representative of population composition regarding house ownership/renting status, gender, and race/ethnicity. The Salt Lake City sample over-represented those under age 30, those with some college or 4-year college degrees, and two levels of household income (\$25,000-\$49,999 and \$75,000-\$99,999), and under represented those 60 years of age or older, those with some high school or a high school diploma or GED, and three household income categories (less than \$25,000, \$50,000-\$74,999, and greater than \$100,000). There was a small amount of missing demographic data, particularly when people declined to indicate household income, though in both samples this was less than 15 percent. As for tracking participation by local versus non-residents, 82 percent of Logan participants were local valley residents and 100 percent of Salt Lake City participants were local valley residents

Identification and Data Use Responses

A unique aspect of this research project was allowing participants to decide whether they wished to be identified in project reporting, and if they were okay with having audio material shared in project reporting or just written material from transcripts. Overall, participants were split on the question of releasing identity (despite audio release) with 47 percent willing to share their identity (Logan 45 percent, Salt Lake City 55 percent). On sharing audio material (despite identity), 89 percent were willing to allow the use of audio material from the interview (Logan 90 percent, Salt Lake City 88 percent). Overall, 10 percent indicated option A (written only, no identification), 43 percent indicated option B (written and audio, no identification), 1 percent indicated option C (written only, identification okay), and 47 percent indicated option D (written and audio, identification okay).

We investigated whether or not there were demographic differences in informed consent selections (Table 3). There was little difference between male (87 percent) and female participants (92 percent) who allowed the use of audio recording, but men (59 percent) were much more likely than women (39 percent) to indicate willingness to be identified. Similarly, there was little difference between white (89 percent) and nonwhite (85 percent) participants to allow audio recording, but white

PUBLIC INTERCEPT METHODS

119

TABLE 3. INFORMED CONSENT DIFFERENCES BY SELECT DEMOGRAPHIC VARIABLES

	OPTIONS A/C*	OPTIONS B/D*	OPTIONS A/B*	OPTIONS C/D*
	WRITTEN ONLY	AUDIO OK	No ID	ID OK
Female (n=72)	6 (8%)	66 (92%)	44 (61%)	28 (39%)
Male (n=61)	8 (13%)	53 (87%)	25 (41%)	36 (59%)
White (n=104)	11 (11%)	93 (89%)	51 (49%)	53 (51%)
Nonwhite (n=27)	4 (15%)	23 (85%)	17 (63%)	10 (37%)
Four-year college or graduate degree (n=49)	7 (14%)	42 (86%)	27 (55%)	22 (45%)
Less than than four-year college degree (n=81) .	7 (9%)	74 (91%)	40 (49%)	41 (51%)

NOTE: *Option A: I choose to remain anonymous, but I am willing to allow the researchers to use **written contents (not audio)** from my interview in project reporting as long as any identifying information is removed. (No name needed); Option B: I choose to remain anonymous, but I am willing to allow the researchers to use **written or audio contents** from my interview in project reporting as long as any identifying information is removed. (No name needed); Option C: I consent to be identified in project reporting as a research participant along with **written contents (no audio)** from my interview in project reporting. (Provide name); Option D: I consent to be identified in project reporting as a research participant along with **written or audio comments** from my interview. (Provide name)

participants (51 percent) were more likely than nonwhite participants (37 percent) to be willing to be identified. There was no strong distinction between having a college or graduate degree (86 percent) or not (91 percent) regarding allowing use of audio, and those without a college or graduate degree (49 percent) were only slightly less willing to be identified than those with a college degree (55 percent).

Illustrations of Water Related Findings

Although it was beyond the scope of this paper to review extensive substantive research findings, this public intercept interview research method yielded many forms of helpful data and results. Information was obtained on how people value water and how they relate to water in their landscapes (Figure 3). We learned that the most dominant theme (mentioned by 91 percent of participants) was the essential value of water for life. Beyond the quantitative content analysis, representative quotes were obtained to elaborate key themes, including “It brings life to me and family,” and “Without water I don’t see that our planet would be

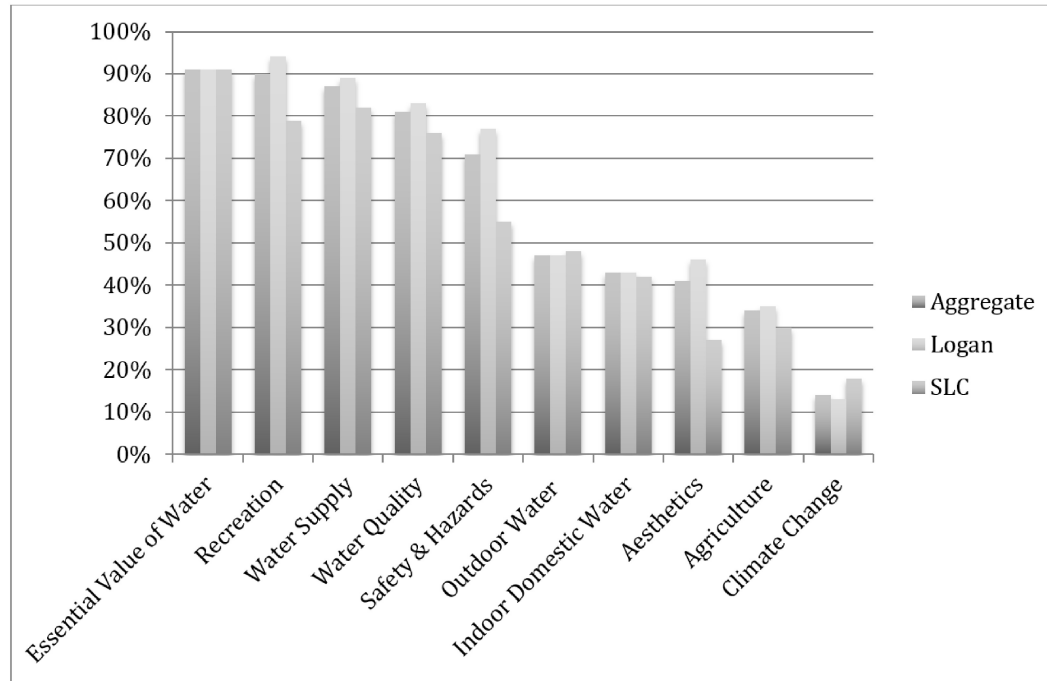


FIGURE 3. WATER ISSUES MENTIONED IN INTERVIEWS

survivable.” Not surprisingly, recreation was also a top issue (overall 90 percent), particularly in Logan (94 percent), although local park study sites near rivers, canals, or ponds likely influenced this finding. Water supply concerns, safety hazards and flooding were other dominant vulnerabilities mentioned by research participants.

Participants were asked about Utah water bodies with which they interact. Nearly all mentioned they interact with these water bodies for recreational purposes. Again, this may be related to the research design of the study and future research with people away from recreational settings may yield more robust information. With this information, we could map relevant water bodies and provide public input on water body status to the state water quality agency. Additionally, data obtained provide information on community water experiences, water policy and management preferences, and sources of water information that not only help address research questions, but provide useful information for municipal water management stakeholders. This method lends itself to collaborative information gathering for multiple objectives and helps characterize public perspectives on water.

DISCUSSION AND CONCLUSIONS

In this project, we collected perspectives on water from local people in nine parks in two Utah communities and provided opportunities for research experience and training for a team of undergraduates. Students participated in everything from research design to data collection, data management, analysis, and visualization. They worked together to problem-solve and to innovate new methods and visualization elements, including the use of an interactive PDF form on iPads to guide interview procedures and data collection in the field, the use of team-based note organizing software, and the production of digital narrative videos to integrate research findings using audio and written quotations and photos of the study areas and region. Students appreciated being involved in more than one role, which allowed them to learn more about the project as a whole and do their own job with mindfulness of other dimensions. The key role of students illuminates the possibilities and benefits of applying this method with relatively inexperienced research teams, including community groups, citizen scientists, or students.

It should be noted, conducting research with undergraduates, as with any new researchers, may lead to an increased chance of procedural errors. These include the possibility of students asking confusing or leading questions, due to unfamiliarity with interview procedures, and gaps in record keeping. Any inhibition to approach people can lead to coverage and sampling error. There is a cost, both in monetary and time commitment, in climbing the learning curve of various software components such as NVivo qualitative analysis software. That said, our effort shows that with training and clear communication, there are mutual benefits for researchers and students.

Other research limitations exist beyond those associated with the research team. We found the lack of interoperability of NVivo software between PC and Mac platforms to be a considerable problem. In addition, we struggled with the complexity of data management associated with a diverse dataset including PDF forms, audio files, transcripts, photos, digital videos, and data analysis products. The development of metadata and an electronic filing system helped not only to maintain organization, but also for assembling all sharable materials for release to a public data repository.

This research project provided an opportunity to expand dimensions of public intercept methods. By incorporating a demographic survey along with interview components, we could address a common criticism of intercept methods as potentially unrepresentative of broader populations. Although it is true that this project is likely an over-representation of people who recreate near water, due to

the location of the study sites in parks near or adjacent to rivers or reservoirs, our samples were quite demographically representative of the broader community populations in the two cities in which the study was situated. Incorporation of informed consent procedures to give participants the choice of whether or not to allow the use of audio interview material and whether or not to be identified in project reporting (i.e., quote attribution) is a step in the direction of open data sharing as increasingly mandated, as part of federal research funding. Qualitative data are rarely shared, due to the restrictions of human subjects requirements. We worked closely with the Institutional Review Board at Utah State University to make these arrangements. The combination of demographic data and informed consent categories allowed for an assessment of the research perspectives of participants in a new and innovative way. The use of iPads, interactive PDF forms, deployable apps for field note-taking on iPads or cell phones, and digital recordings allowed researchers to proceed in a completely paperless manner. We did not find any reluctance or discomfort in using these technologies among researchers or participants. Finally, the use of digital narratives for reporting study findings, including quotations from willing participants, made the project come to life for both students and the various publics they have been shared with to date. These research innovations were led largely by student researchers.

This research experience also provided insights on water perspectives in Utah. Previous research efforts focused on survey data in which options were predetermined for ranking by participants. The use of open-ended interview questions allowed for an organic, inductive approach by which the dominant themes could emerge without bias from researchers. Finding that the most prominent public perspective was of water as having essential value for life was interesting, given that the general discourse among the scientific water research community is that water issues are largely about threats and problems (Hale et al. 2015). This finding, among others, adds depth to our overall understanding of water issues and shows the value of mixed methods research designs.

In summary, we believe this effort contributed to an expansion of possibilities associated with public intercept surveys and interviews. For research on place-based issues of considerable salience with a local population, this method may be deployable with limited resources, in a short time, and with a relatively inexperienced, but trainable research team.

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REFERENCES

- Anderson, Laura, Robert Manning, William Valliere, and Jeffrey Hallo. 2010. "Normative Standards for Wildlife Viewing in Parks and Protected areas." *Proceedings of the 2009 Northeastern Recreation Research Symposium*. GTR-NRS-P-66. Washington, DC: U.S. Government Printing Office.
- Blahna, Dale. J. and Douglas K. Reiter. 2001. "Whitewater Boaters in Utah: Implications for Wild River Planning." *International Journal of Wilderness* 7(1):39–43.
- Blair, Johnny, Ronald F. Czaja, and Edward A. Blair. 2014. *Designing Surveys: A Guide to Decisions and Procedures*. Thousand Oaks, CA: Sage.
- Bush, Alan J. and E. Stephen Grant. 1995. "The Potential Impact of Recreational Shoppers on Mall Intercept Interviewing: An Exploratory Study." *Journal of Marketing Theory and Practice* 3(4):73–83.
- Bush, Alan J. and Joseph F. Hair. 1985. "An Assessment of the Mall Intercept as a Data Collection Method." *Journal of Marketing Research* 22(2):158–67.
- Campbell, Michael O'Neal. 2013. "The Relevance of Age and Gender for Public Attitudes to Brown Bears (*Ursus arctos*), Black Bears (*Ursus americanus*), and Cougars (*Puma concolor*) in Kamloops, British Columbia." *Society & Animals* 21(4):341–59.

- Cheng, Anthony S., Linda E. Kruger, and Steven E. Daniels. 2003. ““Place” as an Integrating Concept in Natural Resource Politics: Propositions for a Social Science Research Agenda.” *Society and Natural Resources* 16:87–104.
- Davenport, Mae A. and Dorothy H. Anderson. 2005. “Getting from Sense of Place to Place-Based Management: An Interpretive Investigation of Place Meanings and Perceptions of Landscape Change.” *Society and Natural Resources* 18:625–41.
- Dillman, Don A., Jolene. D. Smyth, and Leah M. Christian. 2014. *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, NJ: John Wiley & Sons.
- Ditton, R. B. and K. M. Hunt. 2001. “Combining Creel Intercept and Mail Survey Methods to Understand the Human Dimensions of Local Freshwater Fisheries.” *Fisheries Management and Ecology* 8:295–301.
- Dunn, Kevin. 2010. “Interviewing.” Pp. 101–38 in *Qualitative Research Methods in Human Geography*, edited by I. Hay. New York: Oxford.
- Flint, Courtney G. and Naomi Krogman. 2014. “Contemporary Water Issues in Rural North America.” Pp. 190–207 in *Rural America in a Globalizing World: Problems and Prospects for the 2100s*, edited by C. Bailey, L. Jensen and E. Ransom. Morgantown, WV: West Virginia University Press.
- Gunderson, Kari and Alan Watson. 2007. “Understanding Place Meanings on the Bitterroot National Forest, Montana.” *Society and Natural Resources* 20(8):705–21.
- Hale, Rebecca L, Andrea Armstrong, Michelle A. Baker, Sean Bedingfield, David Betts , Caleb Buahin, Martin Buchert, Todd Crowl, R. Ryan Dupont , James R. Ehleringer, Joanna Endter-Wada, Courtney Flint, Jacqualine Grant, Sarah Hinnners, Jeffrey S. Horsburgh, Douglas Jackson-Smith, Amber S. Jones, Carols Licon , Sarah E. Null, Augustina Odame, Diane E. Pataki, David Rosenberg, Madlyn Runburg, Philip Stoker, and Courtenay Strong. 2015. “iSAW: Integrating Structure, Actors, and Water to Study Socio-hydro-ecological Systems.” *Earth’s Future* 3(3):110–32.
- Hu, Zhihua and Lois Wright Morton. 2011. “U.S. Midwestern Residents Perceptions of Water Quality.” *Water* 3:217–234.
- Keilor, Bruce D. and Robert J. Sutton. 1993. “An Investigation of Avoidance Behavior in Mall-intercept Market Research.” *The Journal of Marketing Management* Spring: 50–6.
- Larson, Kelli L., Rhian Stotts, Amber Wutich, Alexandra Brewis, and Dave White. 2016. “Cross-Cultural Perceptions of Water Risks and Solutions Across Select Sites.” *Society & Natural Resources* 29(9):1049–64.

- Larson, Kelli L., Amber Wutich, Dave White, Tisha A. Munoz-Erickson, and Sharon L. Harlan. 2011. "Multifaceted Perspectives on Water Risks and Policies: A Cultural Domains Approach in a Southwestern City." *Research in Human Ecology* 18(1):75–87.
- Loomis, John. 2007. "Correcting for On-Site Visitor Sampling Bias When Estimating the Regional Economic Effects of Tourism." *Tourism Economics* 13(1):41–7.
- McKenzie, David J. and Johan Mistiaen. 2007. "Surveying Migrant Households: A Comparison of Census-based, Snowball and Intercept Point Surveys." Policy Research Working Paper 4419. The World Bank.
- Neuman, William L. 2006. *Social Research Methods: Qualitative and Quantitative Approaches*. 6th Ed. Boston, MA: Allyn & Bacon.
- Ricard, Laura N., Clifford W. Scherer, and Sara B. Newman. 2011. "Exploring Attribution of Responsibility for Visitor Safety in a US National Park." *Health, Risk & Society* 13(6):527–45.
- Robertson, Robert and S. Boggle. 2015. "Route 1A/1B Scenic Corridor Tourism Inventory and Visitor Needs Assessment." Department of Natural Resources and the Environment. University of New Hampshire, Unpublished report.
- Rookey, Bryan D., Lena Le, Margaret Littlejohn, and Don A. Dillman. 2012. "Understanding the Resilience of Mail-back Survey Methods: An Analysis of Twenty Years of Change in Response Rates to National Park Surveys." *Social Science Research* 41:1404–14.
- Singleton, Jr, Royce A. and Bruce C. Straits. 2010. *Approaches to Social Research*. 5th Ed. Oxford, UK: Oxford University Press.